Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of the Petition of	)	
	)	
DIRECTV Enterprises, LLC	)	
	)	
For a Rulemaking on the Feasibility of Reduced Orbital Spacing in the U.S. Direct Broadcast Satellite Service	)	**RM No.:**
	)	
	)	
	)	

PETITION FOR RULEMAKING

Pursuant to Section 1 401 of the Commission's Rules, DIRECTV Enterprises, LLC ("DIRECTV") hereby petitions the Commission to institute a rulemaking proceeding to determine whether a new class of direct broadcast satellite service ("DBS") satellites can feasibly be authorized in the current spectrum used to provide DBS service (also referred to internationally as Broadcast Satellite Service ("BSS")) in the United States, from orbital positions that are separated by less than nine degrees.

Nine-degree spacing has been the foundation of the U S. DBS industry since its inception, and it has served both the industry and the public extremely well. Billions of dollars have been invested in a deployed satellite infrastructure that provides competition to cable monopolies and extends multichannel video, audio and other innovative services into geographic areas unreached by cable However, several entities have asked the Commission for authority to interleave lower-power DBS satellites between the existing DBS satellites that operate pursuant to the Commission's nine-degree orbital spacing policy and the Region 2 BSS Plan of the International Telecommunications Union ("ITU") The question of whether these short-spaced "tweener" satellites can be authorized, and if so, their technical characteristics and the spacing

that they must observe in order to protect the operations and future growth of deployed U.S. DBS systems, are questions best answered in a rulemaking setting.

Part one of this petition explains why the time is ripe for a rulemaking on the authorization of tweener DBS satellites at orbital spacings of less than nine degrees. Part two identifies certain key public policies that should guide the rulemaking: (1) protection of existing services and infrastructure investments by operational DBS systems using the 12 GHz band, and (2) preservation of the technical flexibility required for such operational DBS systems to continue to grow and innovate as they strive to provide vigorous competition to incumbent cable television systems. Any attempt to accommodate tweener satellite systems at 12 GHz in the U S portion of the geostationary orbital arc must not be permitted to stifle, for example, the continued expansion of DBS-delivered local broadcast channels, the continued rollout of DBS-delivered high-definition television ("HDTV") programming, or the continued development and introduction of innovative new satellites and services by operating DBS systems Part three outlines a non-exclusive list of specific proposals and questions on which the Commission should solicit comment

I. THE TIME IS RIPE FOR A RULEMAKING ON THE AUTHORIZATION OF "TWEENER" SATELLITES AT ORBITAL SPACINGS OF LESS THAN NINE DEGREES

Nine degree orbital spacing has been the foundation for the development of DBS service in the United States. As the Commission has explained

> In the early 1980's, ITU members reached agreement on assigning BSS orbital locations among the ITU's member countries. . In accordance with Appendices S30 and S30A, *DBS orbital assignments to the United States are separated by nine degrees, as opposed to two-degree spacing used to accommodate C and Ku band FSS assignments Greater orbital spacing in the DBS service*

enables subscribers to use earth station antennas that are smaller than those generally employed for C and Ku band services.[1]

DBS operators in the United States have invested a billions of dollars to design, deploy and operate high-power DBS satellites across U S -allotted DBS orbital locations, in reliance on the fact that these locations are spaced nine degrees from one another. This orbital spacing has allowed DBS to grow into a mass-market consumer offering that presently serves more than 20 million U.S. consumers, and indeed, has defined the core qualities of U.S. DBS service, including robust, high-quality signals; high throughput; and consumer-friendly, small, non-tracking dish antennas

The Commission's nine-degree orbital spacing policy likewise has fostered expansion and innovation in the DBS service Adequate orbital spacing has allowed U.S. DBS operators in recent years to deploy high-power satellites that incorporate spot beam technology, which enables them to offer satellite-delivered local broadcast channels, thereby fostering increased competition with incumbent cable television operators. And such spacing could become even more critical as U S DBS operators continue to innovate by deploying additional spot-beam satellites, implementing higher order modulation and coding, and rolling out new services, such as high-definition television ("HDTV") and interactive services.

The Commission has anticipated that it might some day need to formally explore the prospect of reduced orbital spacing for DBS satellites, particularly as "the satellite industry as a whole has become more global in nature" and non-U.S. licensed satellites seek to "provide DBS service to U S. consumers."[2] For the 12 GHz band,[3] which features deployed, operational DBS

---

1 *Policies and Rules for the Direct Broadcast Satellite Service, Notice of Proposed Rulemaking*, 13 FCC Rcd 6907 (1998) ("DBS Rules NPRM"), at ¶ 6 (emphasis added).

2 *Policies and Rules for the Direct Broadcast Satellite Service*, Report and Order, 17 FCC Rcd 11331 (2003) ("DBS Rules Order"), at ¶ 90, *DBS Rules NPRM* at ¶ 50

systems, DIRECTV has consistently counseled extreme caution in this regard, which was acknowledged by the Commission last year

> Service into the United States from future entrants such as non-U S. DBS satellites could result in smaller satellite spacing than the current nine-degree separation between U.S DBS orbital locations. The orbital spacing between satellites serving the same geographic area, combined with both the satellite transmit characteristics and receive earth station antenna performance, determines the amount of interference a DBS system will receive. DIRECTV states that the core characteristics of DBS service . . . argue against tight spacecraft spacing and the resulting interference limited links. It cautions that any use of Region 2 orbital locations at less than 9-degrees separation be studied very carefully [4]

Understanding the seriousness of the issue, the Commission pledged to fully consider such issues "in future rulemakings" if necessary [5]

DIRECTV submits that it is now time for the Commission to undertake a thorough and systematic analysis in a rulemaking proceeding of the implications of reduced orbital spacing for DBS satellites serving, or proposing to serve, the United States at 12 GHz. As the Commission anticipated, potential foreign BSS entrants have begun, in an uncoordinated, piecemeal fashion, to challenge the Commission's longstanding nine-degree spacing policy SES Americom, Inc. ("SES"), for example, has filed a petition for declaratory ruling to provide service to the United States from a proposed U.K -filed modification to the Region 2 BSS Plan at 105.5° W.L.,[6] in between U S assignments at 101° W L. and 110° W L – that is, 4.5 degrees away from five

---

[3] U S DBS systems uplink programming utilizing the 17.3-17.8 GHz frequency bands, and downlink programming from DBS satellites to consumers utilizing the 12.2-12.7 GHz band ("12 GHz band").

[4] *DBS Rules Order* at ¶ 129 (footnotes omitted)

[5] *DBS Rules NPRM* at ¶ 50

[6] *SES Americom, Inc , Petition for Declaratory Ruling To Serve the U S Market Using BSS Spectrum from the 105 5° W L Orbital Location*, Petition for Declaratory Ruling, SAT-PDR-20020425-00071 at 1 (filed Apr 25, 2002) ("SES Petition")

high-power DBS satellites, including one state-of-the-art spot-beam satellite that DIRECTV uses to serve more than eleven million U.S consumers.

Furthermore, SES's proposed entry into the United States at 105.5° W.L. is not an isolated proposal Foreign administrations, such as the United Kingdom and the Netherlands, now have proposed Region 2 Plan modifications proposing U S coverage at 96.5° W L., 114.5° W L , 125° W L and 127° W L And although initially opposed to the SES proposal,[7] EchoStar Satellite Corporation ("EchoStar"), a major U.S. domestic DBS operator, now has joined the fray, filing applications for authority to operate DBS satellites from 86.5° W.L., 96 5° W.L., 114 5° W L and 123 5° W L [8]

Although DIRECTV opposed the SES Petition,[9] it has no categorical objection to a consideration of twcener DBS satellites at reduced orbital spacing Indeed, *DIRECTV itself* in 1997 proposed 4.5 degree-spaced DBS satellites in spectrum allocated for DBS use at 17 GHz when that spectrum becomes available in 2007. However, any decision to insert short-spaced

---

[7] EchoStar has submitted technical analysis demonstrating that "the proposed insertion of a DBS satellite at 105 5° W L is likely incompatible with existing and planned U.S DBS satellites assigned to the 101° W L and 110° W L. orbital locations " Comments of EchoStar Satellite Corporation, File No SAT-PDR-20020425-00071 (June 17, 2002), at 1

[8] *See, e g , Application of EchoStar Satellite Corporation for Authority To Construct, Launch and Operate a Direct Broadcast Satellite in the 12 2-12 7 GHz and 17 3-17 8 GHz Frequency Bands at the 86 5° W L Orbital Location*, SAT-LOA-20030609-00113 (filed June 9, 2003) ("EchoStar Application") (EchoStar also filed the following applications for authority to construct, launch and operate DBS satellites between the existing U S DBS locations SAT-LOA-20030605-00109 (96.5° W L), SAT-LOA-20030604-00108 (114 5° W L), SAT-LOA-20030606-00107 (123 5° W L))

[9] Among other grounds for opposition, DIRECTV presented technical data demonstrating that SES's proposed satellite would cause harmful interference with existing U.S. DBS satellites, and more important, that requiring U S DBS systems to protect SES's satellite at 105 5° W.L in the manner sought by SES would severely hamper the expansion of existing and planned DBS services, including the operation and further deployment of high-power spot beam satellites to provide local-into-local services and the implementation of more spectrally efficient modulation schemes. *See* Opposition of DIRECTV, Inc , File No SAT-PDR-20020425-00071 (filed June 17, 2002), *see also* Reply of DIRECTV, Inc , File No SAT-PDR-20020425-00071 (filed July 3, 2002) EchoStar also has opposed the SES Petition on similar grounds *See* Comments of EchoStar Satellite Corp , File No SAT-PDR-20020425-00071 (filed June 17, 2002) at 4-5

DBS satellites serving the United States into the arc must be supported by a comprehensive technical record, and not effectuated through a series of piecemeal "landing rights" or licensing adjudications or unrelated, "one-off" coordinations with other administrations The Commission has acknowledged repeatedly that a rulemaking proceeding "is generally a better, fairer and more effective method of implementing a new industry-wide policy than is the ad hoc and potentially uneven application of conditions in isolated proceedings affecting or favoring a single party."[10] And a rulemaking proceeding is specifically the approach the Commission has taken in the past – wisely in DIRECTV's view – regarding fundamental changes to or implementations of orbital spacing policy [11]

Furthermore, the possibilities that are within the Commission's grasp in this case are significantly more complex than the essentially binary questions posed by recent applications. Any authorization of tweener satellites will necessarily require the balancing of important considerations such as service availability, channel capacity, equipment cost, consumer

---

[10] *Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range, Amendment of the Commission's Rules to Authorize Subsidiary Terrestrial Use of the 12 2-12 7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates*, Second Report and Order, 17 FCC Rcd 9614 at ¶ 218 (2002) ("NGSO-MVDDS Second Report and Order")

[11] *See, e g , Licensing of Space Stations in the Domestic Fixed-Satellite Service and Related Revisions of Part 25 of the Rules and Regulations*, Notice of Inquiry and Proposed Rulemaking, 88 FCC 2d 318 at ¶ 14 (1981) ("FSS Licensing NPRM"), at ¶ 13 (goal of rulemaking proceeding to make a record on feasibility of reduced orbital spacings), *Assignment of Orbital Locations to Space Stations in the Domestic Fixed-Satellite Service, Memorandum Opinion and Order*, 84 FCC 2d 584 (1980), at ¶ 44 (finding that "although a reduction in orbital spacing to accommodate more satellites in orbit, as proposed by NTIA, is likely to be feasible, we are deferring this question to a further proceeding to insure that such a decision is based on [a] more complete record than is before us today") Indeed, at 17 GHz, in response to DIRECTV's proposal for 4 5 degree orbital spacing of DBS satellites, the Commission found it "premature" to decide the issue, because "such spacing might unduly restrict the ability to share this band" and "there could be significant changes in technology during this period " Thus, the Commission "will address orbital spacing" at 17 GHz "in a future proceeding " *Blanket Licensing Order*, 15 FCC Rcd 13430 (2000), at ¶ 100 If the Commission decides to consider proposals for the provision of U S DBS service at 12 GHz from orbital positions spaced less than nine degrees away from one another, then the justifications for doing so via a rulemaking proceeding are even more powerful and urgent

acceptance, and market structure. If, for example, it turns out that the technical accommodations necessary to make way for a tweener satellite at 105 5° (with 4.5° of orbital spacing) would make it equally feasible to place *two* tweener satellites at 104° and 107°, then an affirmative response by the Commission on the narrow question regarding 105.5° would actually preclude an outcome that may well have superior public interest benefits It is therefore critically important for the Commission to seize the current opportunity to consider the entire range of possibilities, in light of all of the pertinent policy considerations, in order to optimize the United States' use of scarce spectrum and orbital resources. The scope of that inquiry demands a rulemaking.

II. THE COMMISSION MUST BROACH THE "TWEENER" SATELLITE ISSUE WITHOUT IMPAIRING PIONEERING INVESTMENTS BY CURRENT U.S. DBS OPERATORS OR HAMSTRINGING THE GROWTH NECESSARY FOR THESE OPERATORS TO CONTINUE TO COMPETE WITH INCUMBENT CABLE TELEVISION OPERATORS

Although the Commission has a number of interesting options to consider in a future rulemaking, two central policies should not be in question First, the Commission's approach to the tweener satellite issue must respect historical investment in DBS satellite deployment – and because of the nature of satellite construction and deployment, "historical investment" includes capital that has already been invested in satellites that may not be deployed for several years. Second, the various tradeoffs that the Commission must consider in crafting service rules for tweener satellites must be resolved in such a way as to preserve the technical flexibility that has permitted existing DBS operators to innovate and provide vigorous competition to cable television operators This need to expand and innovate demands that any effort to accommodate tweener satellite systems, including the interference protection to be afforded such systems, not be allowed to impair the necessary steps that current DBS operators must take to upgrade and improve their systems, and the concomitant expanded or new services that they will introduce to U S consumers

As mentioned, since the inception of DBS service in the United States, orbital assignments for DBS satellites serving the U.S. have been separated by nine degrees.[12] Tremendous investments have been made in existing U.S. DBS systems in reliance upon the Commission's nine-degree orbital spacing policy, and DBS service has undergone exponential growth since the Commission first adopted DBS service rules in 1982. Indeed, nine-degree spaced DBS satellites have been the catalyst for a high-quality, mass-market service that now has approximately 20 million subscribers in the United States, and that continues to represent the most effective competitive service to incumbent cable systems in the Multichannel Video Programming Distribution ("MVPD") market.[13] Furthermore, the nine-degree orbital spacing policy has in large part facilitated recent technological developments that make it possible for U S DBS operators to deploy high-power spot beam satellites that deliver local-into-local services, further increasing competition to cable television systems, as well as CONUS satellites that support the provision of national programming, advanced television services, including HDTV services, and interactive services.

If the Commission is to authorize tweener satellites with spacing of less than nine degrees, the first priority should be to ensure that tweener satellites will not adversely affect the current or future operations of deployed DBS systems operating in the 12 GHz band whose satellites and planned modifications have been based on a continuation of U S. nine-degree spacing policy. DIRECTV, for example, is continuing to upgrade its satellite fleet to employ spot beams that will allow it to provide satellite-delivered local broadcast channels in more

---

[12] *See DBS Rules Order*, 17 FCC Rcd at ¶ 6 & n 33

[13] *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Ninth Annual Report, 17 FCC Rcd 26901 at ¶ 7 (2002) (estimate as of June 2002)

designated market areas ("DMAs") [14] Spot beam technology requires the flexibility afforded by nine-degree spacing If existing satellites were required to accommodate the operation of satellites introduced between the current nine-degree assignments, spot-beam power would likely have to be reduced, resulting in diminished local channel service to many U S. cities. The reduction in power would also likely result in signal outages and incomplete geographic coverage of DMAs in which satellite-delivered local service is provided. As transponders are switched from a higher to a lower code rate, fewer channels would be available to DBS carriers for retransmission into a DMA. And because of the "carry one, carry all" requirement of Section 338 of the Communications Act,[15] even a small diminution in capacity in a spot beam could result in a total inability to continue to provide local-into-local service in a market if the beam can no longer support all of the stations in the market

Moreover, DIRECTV has invested substantial resources to develop higher-power spot-beam satellites that operate with higher effective isotropic radiated power ("EIRP") and that would employ higher order modulation schemes in order to gain more capacity to provide advanced, bandwidth-intensive services, such as HDTV.[16] These advanced technologies again have been designed to be deployed in reliance on the nine-degree orbital spacing policy. These technologies may not be able to operate in a 4.5-degree spaced environment – at least not in the fashion that is proposed by SES and EchoStar Thus, requiring all future U.S. DBS satellites and corresponding modifications to the ITU BSS Plan to protect tweener satellites in the proposed

---

[14] *See Application of DIRECTV Enterprises, LLC for Authority to Launch and Operate DIRECTV 7S (USABSS-18)*, File No SAT-LOA-20030611-00115

[15] 47 U S C § 338(a)

[16] HDTV requires approximately five times the bit rate as standard definition television In order to provide a reasonable number of HD channels per transponder, advanced modulation and coding techniques will be required, along with higher C/N ratios C/N ratios of 8-12 dB will be required for bit rates of 40-60 Mbps With higher C/Ns and higher satellite transmit power comes the potential of increased interference to closely spaced satellites

new 4 5-degree spaced orbital locations could severely hinder, and even freeze, development and use of new satellite technology by any U.S BSS system.

Congress has specified its goal of promoting the continued emergence of DBS as a strong competitor to incumbent cable operators, and has given U.S. DBS operators the authority to deliver local broadcast signals to consumers via satellite in order to achieve that goal. Therefore, it is highly questionable whether adopting a new BSS orbital spacing plan at 12 GHz that threatens such developments is in the public interest. Such considerations instead should be examined in the proposed rulemaking proceeding, since that would allow the Commission to find the best way to accommodate all interests instead of simply choosing one at the expense of others

DIRECTV urges the Commission to conduct this rulemaking proceeding with careful attention to the impact that the introduction of short-spaced tweener satellites will have on the continued emergence of DBS as a strong competitor to incumbent cable television operators To effectively compete with cable, DBS operators must be able to continue to innovate technologically They must be permitted to expand their delivery of local broadcast signals, HDTV programming and other new services to consumers via satellite. Thus, the Commission should ensure that any DBS satellites launched into new orbital locations would not hinder the development or deployment of new spot beam satellites or of advanced modulation systems that deliver more channels and/or more advanced services

III. ISSUES TO BE ADDRESSED IN A RULEMAKING PROCEEDING

A. General Feasibility of Reduced Orbital Spacing for DBS Service at 12 GHz

The Commission must evaluate the general feasibility and tradeoffs involved in reducing the orbital spacing environment for DBS systems serving the United States to something less than nine degrees In so doing, the Commission must consider how these tradeoffs vary

depending upon the type of orbital spacing and other parameters considered, and create a comprehensive record on the technical issues.

This in fact is the approach that the Commission took in examining reduced orbital spacing implications for the Fixed-Satellite Service ("FSS"). In that proceeding, the Commission acknowledged that there are economic and technical costs that increase with smaller orbital separation, including higher interference levels adversely affecting service quality or system capacity, more expensive equipment needed to reduce interference to acceptable levels, and loss of operational flexibility as adjacent satellite systems are engineered under tighter constraints to decrease interference problems.[17]

In addition to the protection of existing satellites and earth stations, the Commission indicated that it must "consider long range policies needed to assure users that their demands can be satisfied well into the 1990's. Investment decisions for the next generation of domestic satellites will be made during the mid-to-late 1980's This is because of the long lead times associated with satellite design, construction and launch."[18] For instance, in its *FSS Licensing Order*, the Commission considered the future growth of narrowband services and recognized that careful frequency planning was required to protect narrowband services, which at the time "appear[ed] to be growing rapidly "[19]

The same rationale must apply here with respect to any change to U.S. DBS orbital spacing. For example, while the SES and EchoStar proposals envision 4.5-degree spaced DBS satellites, a six-degree spacing regime could also be considered In the recent re-planning of spectrum in ITU Regions 1 and 2, for example, six-degree spacing was used as a guide, although

---

17 *FSS Licensing NPRM* at ¶ 14

18 *Id* at ¶ 4

19 *FSS Licensing Order* at ¶ 25

this was based on assumptions of 60 cm antennas and a hard power limit on the satellites, which are different from the conditions in Region 2 [20] Three-degree systems also could be proposed and designed to coexist with current nine-degree systems. Here, the trade-off parameters of receive antenna size and availability for closely spaced systems will be magnified as compared to 4 5-degree spacing Nonetheless, in considering a radical alteration of the present nine-degree spacing regime for DBS, all such regimes should be considered Indeed, there are a myriad of scenarios in which tweener satellites can be deployed Among the parameters that can vary are orbital spacing, availability, data rate, protection to nine-degree satellites, protection from nine-degree satellites and other tweener satellites, and receive antenna size.

To illustrate this point, four parametric charts below show trade-offs that can be made to facilitate less than nine-degree spaced satellites and still protect existing DBS services. (The protection criteria assumed for existing satellites are discussed in Section II.B. below.) Figures 1 and 2 show C/N versus dish size, one for three-degree spacing and one for 4.5-degree spacing. Figures 3 and 4, show dish size versus availability, again, one for each case [21] The other parameters are held constant "HP" are the high-power nine-degree spaced satellites, and "LP" are the low-power "tweener" satellites

---

[20] In Region 2, the receive antennas are almost exclusively 45 cm and there are no pfd limits for transmitting satellites

[21] It should be noted that the tweener satellite spacing is not exactly three degrees or 4 5 degrees For the 3-degree case, the spacing is actually slightly greater than three degrees between the tweener satellites and the nine-degree satellites since the tweener satellites are closer to each other than to the nine-degree satellites This is to minimize interference into the nine-degree satellites. For the 4 5-degree case, the spacing is assumed to be 4 3 degrees to the nine-degree satellites since BSS satellites can operate at ± 0 2 degrees from the nominal orbital assignment

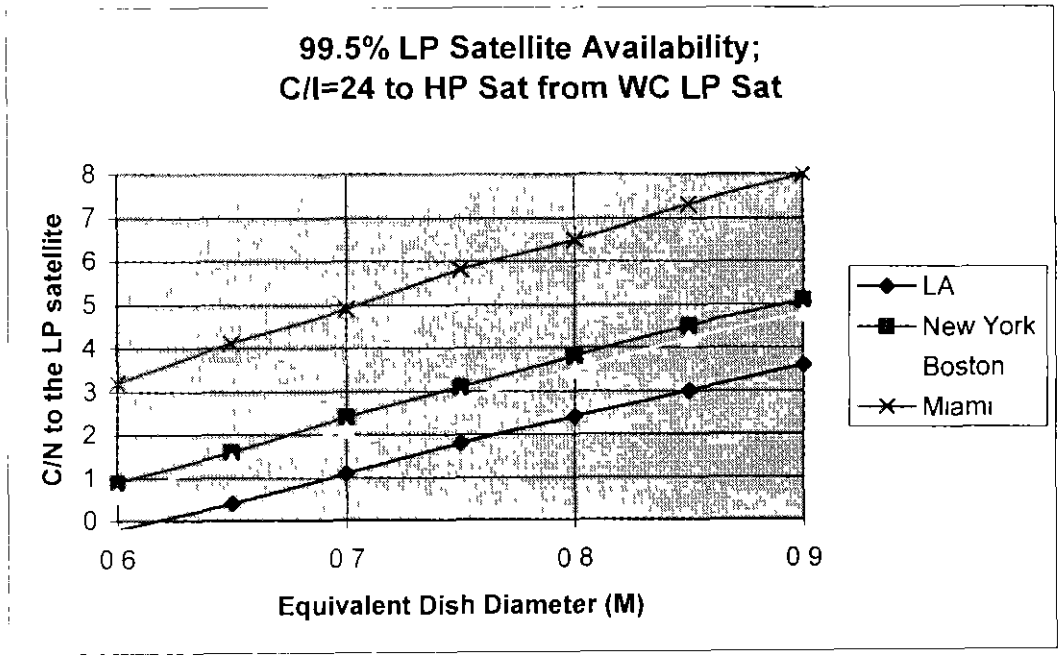

Figure 1 C/N vs. dish size for 3-degree spacing

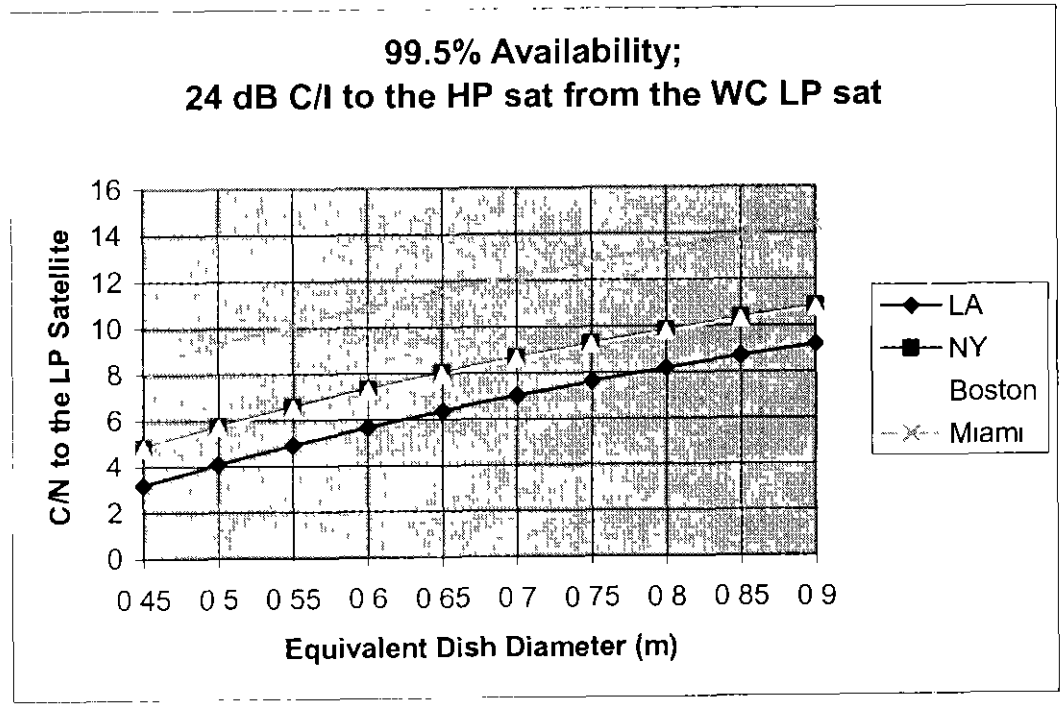

Figure 2 C/N vs dish size for 4 5-degree spacing

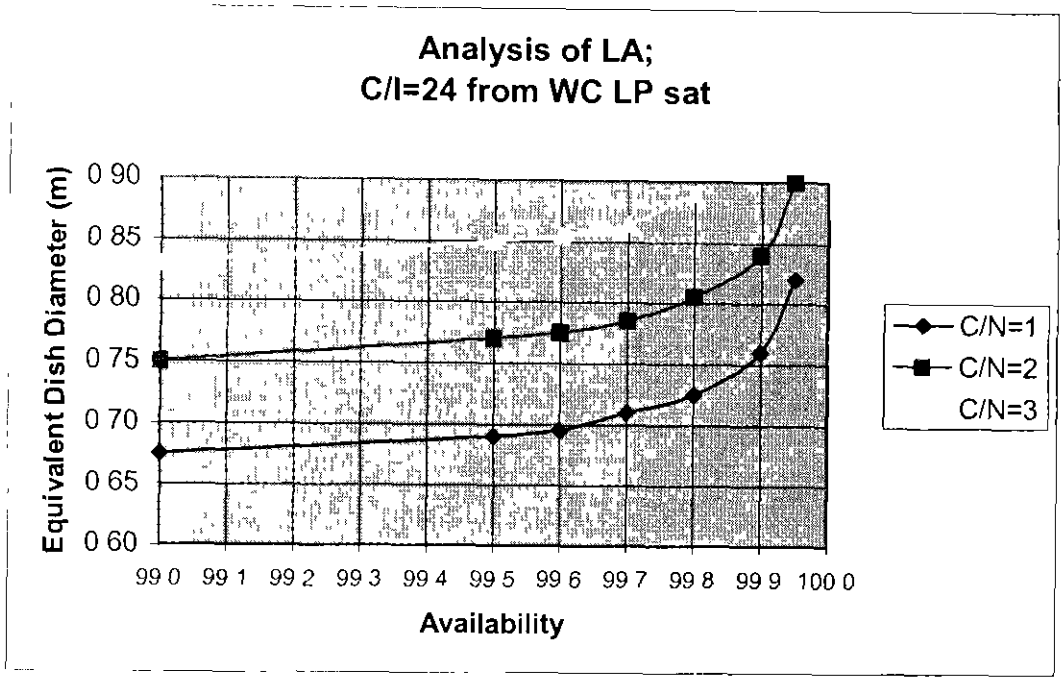

Figure 3 Dish size vs Availability for 3-degree spacing

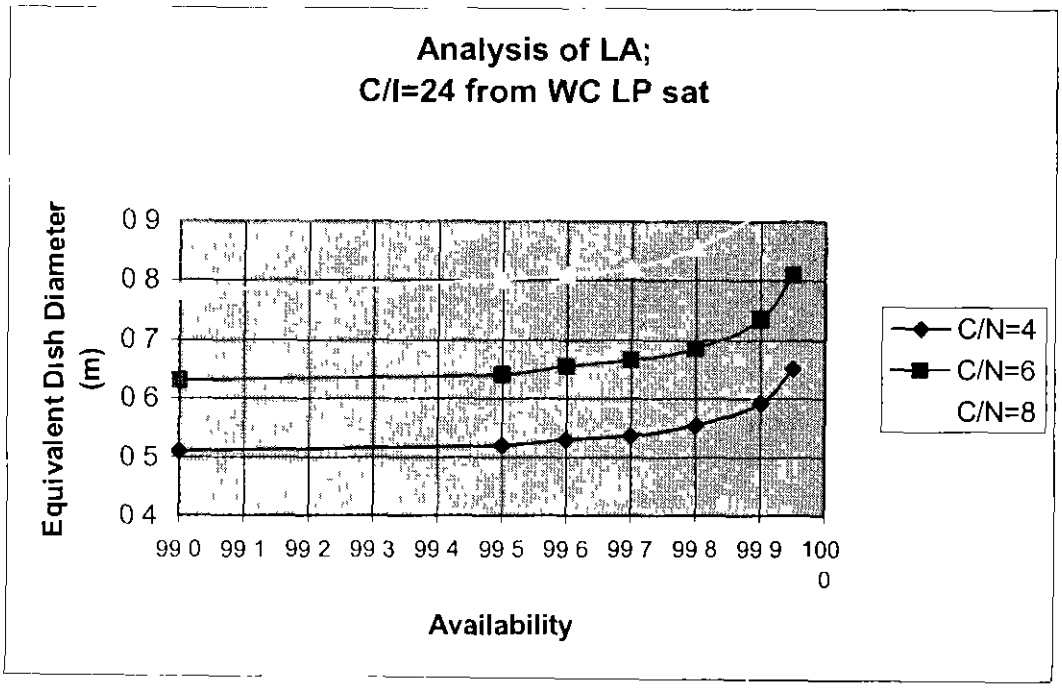

Figure 4 Dish size vs. Availability for 4.5-degree spacing

Figure 5 below shows the Shannon theoretical limit for capacity versus C/N Advances in coding techniques allow data rates within 1 dB of the theoretical limit (lower pink curve) For example, a data rate of 24 Mbps (1.2 bits/sec/Hz x 20 MHz) requires a C/N of about 2 dB. Allowing for receiver demod and satellite degradation (approximately 1 dB for QPSK), the required C/N is 3 dB

For the three-degree spacing case, and for 99 5% availability in Los Angeles with a data rate of 24 Mbps, a C/N of 3 dB requires an 85 cm dish (see Figure 3). A data rate of 24 Mbps is easily attained using QPSK modulation with a 2/3 code rate and advanced coding techniques, such as turbo code or LDPC (low-density parity check). Of course there are many different possible scenarios and tradeoffs If a higher data rate or availability is desired, larger antennas can be deployed.

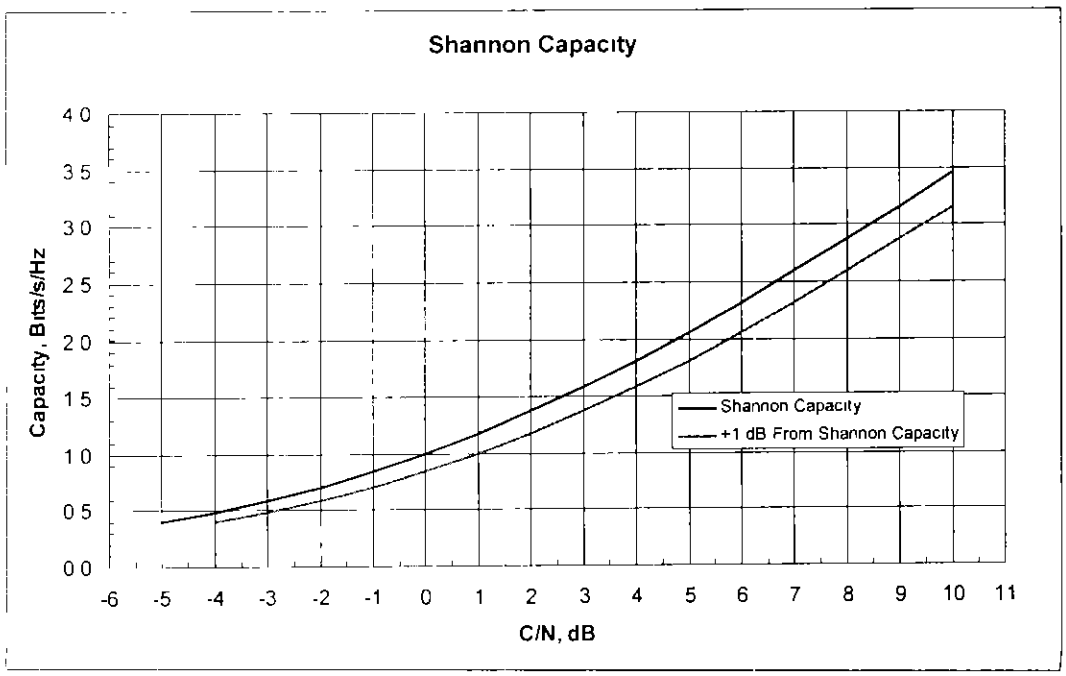

Figure 5 Theoretical (Shannon) limit for capacity vs. C/N

B. Protection Criteria That Adequately Protect Both Existing and Planned U.S. DBS Satellites and Services

Any new regulations that the Commission may consider adopting in its examination of reduced orbital spacing should provide technical parameters and protection criteria that allow DBS satellites operating from new locations to coexist with existing systems, and to accommodate existing systems' development of advanced satellite technologies and services. As described above, the U S DBS service at 12 GHz is not a "green field," but instead has been cultivated based on the current nine-degree spacing policy

In this rulemaking proceeding, the Commission should make the protection of current United States BSS Plan assignments and existing modifications the paramount public interest criterion If reduced orbital spacing is permitted, then service rules should be adopted that protect the operations and growth of existing DBS services, and that do not permit tweener satellites to erode the high service availability that U S. consumers expect from DBS. Indeed, for this reason, because of the needs of deployed DBS systems that have relied on nine-degree spacing, it should not be expected that tweener satellites should or can be afforded the same operating conditions or level of protection as systems operating from the original United States Region 2 BSS Plan assignments (or modifications to these assignments) already in operation [22]

If the Commission decides to consider the legal, technical, and policy implications of implementing a less than nine-degree orbital spacing plan at 12 GHz, DIRECTV proposes that

---

[22] The Commission has held that even when a foreign satellite service provider has ITU priority, "existing U S satellite systems are not required to change their licensed operating parameters to accommodate additional non-U S licensed systems." *Pacific Century Group, Inc., Letter of Intent as a Foreign Satellite Operator to Provide Fixed Satellite Services in the Ka-band to the United States*, Order, 16 FCC Rcd 14356 at ¶ 18 (2001), *see also, Second Round Assignment of Geostationary Satellite Orbit Locations to Fixed Satellite Service Space Stations in the Ka Band*, Order, 16 FCC Rcd 14389 at ¶ 26 (2001)

the Commission seek comment on the following protection criteria in order to safeguard current DBS systems:

- A single-entry C/I ratio of 24 dB within CONUS for national beams and spot beams (including EOC) C/I based on
  - 45 cm receive antenna
  - ITU-R Rec BO.1213 reference pattern
  - 0 5 degree receive antenna mis-pointing
  - 1.05 dB bandwidth advantage due to frequency or polarization offset
- A single-entry C/I of 24 dB for Alaska and Hawaii based on 1-meter receive antenna

The C/I value of 24 dB is based on an aggregate C/I of 21 dB, and the assumption that two satellites at the newly proposed orbital locations will straddle a nine-degree spaced satellite.[23]

Additionally, under a less than nine-degree spacing regime, DIRECTV would propose the following criteria to protect "tweener" satellite systems:

- A single-entry C/I ratio of 12 dB from Plan modifications at 61 5° W.L., 101° W L , 110° W L , 119° W.L., 148° W L., 157° W.L , 166° W.L , and 175° W.L. in service or filed after the date service rules are in effect. C/I based on:
  - 75 cm receive antenna
  - ITU-R Rec BO 1213 reference pattern
  - 0 degree mis-pointing for C/I calculations
  - 1 05 dB bandwidth advantage
- No protection from currently operating or filed modifications at 101° W L , 110° W L and 119° W L

[23] Note that WRC-2000 adopted an aggregate protection ratio of 21 dB for co-channel signals in order to protect digital assignments from digital emissions in Regions 1 and 3 *See* ITU Radio Regulations Section 3 4 of Annex 5 of Appendix 30

Based on these operating conditions, tweener systems would be able to achieve 99.8% availability in most U S cities And with recent advances in modulation and coding techniques, it is possible to deploy satellites with lower EIRP (compared to current DBS satellites) and achieve equal or greater capacity than systems currently in operation

C. Rules for Issuing DBS Authorizations to Operate from New Tweener Orbital Locations and Status of Pending Applications

Any new DBS orbital locations that the Commission makes available should be granted to licensees based on the current rules governing domestic DBS service. Under the current rules, DBS licenses are granted pursuant to an auction process.[24] Therefore, if the Commission decides, after comprehensively considering the implications for U.S. DBS service and the MVPD market as a whole, to revise the U S. DBS orbital spacing policy, it should subject any initial applications or petitions to provide service from new DBS orbital locations to competitive bidding procedures.

Correspondingly, the Commission should address the status of the EchoStar pending applications for tweener satellites, the SES Petition, and any other pending applications or landing rights petitions that seek authorization to serve the United States, and should dismiss these requests without prejudice to these parties' participation in an auction process. If the Commission takes the path of creating tweener orbital positions, it should give all current and potential providers of U S. DBS service the opportunity to acquire and make use of these new orbital resources

[24] 47 C F R § 25 148(d) ("Mutually exclusive initial applications to provide DBS are subject to competitive bidding procedures ")

D. Treatment of Foreign-Licensed Systems Seeking to Provide U.S. Coverage

If the Commission decides to adopt an alternative orbital spacing policy for DBS satellites, the Commission should expressly address the status of foreign BSS systems seeking to provide U.S. DBS service. DIRECTV proposes that the Commission, as is the current practice,[25] cause foreign-licensed systems serving the United States to abide by all U.S. domestic service rules governing DBS and the new DBS orbital positions.

IV. CONCLUSION

For the foregoing reasons, the Commission should grant DIRECTV's Petition for Rulemaking to examine the need for and feasibility of introducing tweener satellites operating in the U.S. DBS service at orbital spacings of less than nine degrees. The Commission should not grant licenses for or landing rights from DBS locations between the current nine-degree spaced orbital positions until the Commission makes the technical and public interest determinations requested by this Petition.

---

[25] In its *DISCO II Order*, the Commission held that it would:

> require non-U.S. satellite operators to comply with all Commission rules applicable to U.S. satellite operators. To do otherwise would place U.S. and foreign operators on uneven competitive footing when providing identical satellite service in the United States and would defeat our public policy objectives in adopting these service rules in the first place.

In the Matter of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Satellite Service in the United States, Report and Order, 12 FCC Rcd 24,094 at ¶ 173 (1997) ("DISCO II Order").

Respectfully submitted,

DIRECTV ENTERPRISES, LLC

By. _____

Gary M. Epstein
James H. Barker
Elizabeth R Park
LATHAM & WATKINS LLP
555 Eleventh Street, N.W.
Washington, D.C 20005
Phone (202) 637-2200
Fax (202) 637-2201

September 5, 2003